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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,881	08/31/2001	Ping Li	021238-478	9479

7590 10/28/2003

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EXAMINER
WALLS, DIONNE A

ART UNIT	PAPER NUMBER
1731	

DATE MAILED: 10/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/942,881	LI ET AL.	
	Examiner	Art Unit	
	Dionne A. Walls	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on October 6th, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 43-74 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 43-74 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Prosecution Reopened

Applicant's arguments filed on October 6th, 2003, with respect to the rejection of claims 43-74 under Heim et al in view of Stephens have been fully considered and are persuasive. Therefore, the FINALITY of the rejection of the last Office Action, dated July 7th, 2003 has been WITHDRAWN. However, upon further consideration, a new ground of rejection is made over Stuetz (US. Pat. No. 4,397,321). In view of the discovery of the above-cited art, PROSECUTION IS HEREBY REOPENED as set forth below.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 43-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stuetz (US. Pat. No. 4,397,321).

Stuetz discloses nearly all that is recited in the claims, since it discloses a cut filler composition, for use in a cigarette, comprising tobacco having uniformly dispersed therein a catalyst composition which can consist of a combination of manganese oxide and/or iron oxide, and potassium and/or calcium oxides (corresponding to the claimed "at least one additive capable of acting as an oxidant....and/or as a catalyst") (see entire reference). While Stuetz may not specifically state that the catalyst particles are in the

form of nanoparticles, it does state that the efficiency of toxic material reduction in smoke delivered by the disclosed catalyst *increases* as the particle size of the catalyst decreases. Also, Stuetz states that a lessened amount of the catalyst is required when a "colloidal" metal oxide catalyst is used. (Note: Brady et al ("Fundamentals of Chemistry") states that "colloidal" mixtures are those in which the particles of at least one of the substances have a dimension in the range of 1 – 1000nm (corresponding to the claimed "nanoparticles")(see page 409)). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to utilize the catalyst of Stuetz as a colloidal dispersion, with the above particle size range, in order to require a lessened amount of catalyst and enable an increased efficiency of reduction of toxic components in cigarette smoke.

The disclosure of Stuetz contemplates a tobacco composition having a catalyst containing both manganese oxide and iron oxide, since it discloses "at least one" transition metal oxide can be used.

It follows that the claimed metal oxides, since having the claimed particle size, would also have the claimed surface area parameters.

It follows that the additive would catalyze the conversion of carbon monoxide at the claimed temperature range since these are the temperatures achieved during the smoking of a cigarette.

Also, it would have been obvious to one having ordinary skill in the art at the time of the invention to optimize the amount and size of the catalyst used in the tobacco filler

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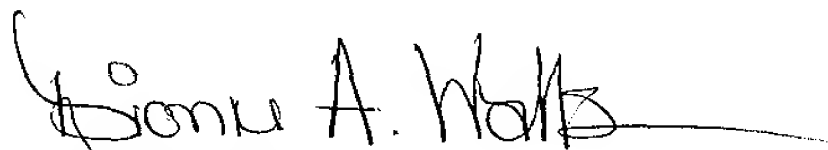
in order to arrive at the claimed carbon monoxide conversion, after routine experimentation, in order to provide for optimal toxic component reduction.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne A. Walls whose telephone number is (703) 305-0933. The examiner can normally be reached on Mon-Fri, 7AM - 4:30PM (Every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on (703) 308-1164. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

A handwritten signature in black ink that reads "Dionne A. Walls". The signature is written in a cursive, flowing style with a long horizontal line extending to the right.

Dionne A. Walls
October 18, 2003